

Appl. No. 09/982,363
Amdt. Dated Jan. 24, 2005
Reply to Office Action of Oct. 22, 2004

Remarks

Claim Rejections Under 35 U.S.C. 103

Claims 1, 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan (US 6,249,625) in view of Li (US 6,477,289).

In response to this rejection, applicant now traverses as follows:

Regarding claim 1, firstly, the present invention includes an optical add-drop multiplexer comprising: a first ferrule with an input optical fiber and an output optical fiber stationed therein; ...; ***an optical crystal***; ...; wherein the first graded index lens, the bandpass filter, the optical crystal and the second graded index lens are successively placed between the first and the second ferrules, an optical multiplexed signal from the input optical fiber is transmitted to the bandpass filter, from which an optical signal having a wavelength identical to the central wavelength of the bandpass filter is output to the dropping optical fiber, and other optical signals *having other wavelengths are coupled with an optical signal from the adding optical fiber having a wavelength identical to the central wavelength of the bandpass filter and are transmitted to the output optical fiber.* As indicated by Examiner, Pan fails to disclose ***“an optical crystal.”*** Similarly, Li does not teach or suggest ***“an optical crystal.”*** Applicant acknowledges that Li discloses an add/drop multiplexer having a refractive element 102 (col. 7, line 31). However, Li does not teach or suggest that ***the refractive element 102 is an optical crystal as recited in claim 1 of the present invention.*** Therefore, both Pan and Li fail to disclose ***“an optical crystal.”***

Secondly, Li fails to disclose, teach or suggest ***that the refractive element 102 can be used in the add/drop multiplexer of Pan.*** In applying Li to Pan, one of ordinary skill in the art would not have been led to provide an optical add-drop

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multiplexer of claim 1 of the present invention comprising an optical crystal. Therefore, *there is no suggestion or motivation* for one skilled in the art to combine Pan with Li in order to arrive at the present invention.

Thirdly, Pan fails to disclose *“other optical signals having other wavelengths are coupled with an optical signal from the adding optical fiber having a wavelength identical to the central wavelength of the bandpass filter and are transmitted to the output optical fiber.”* Similarly, Li fails to disclose, teach or suggest *“other optical signals having other wavelengths are coupled with an optical signal from the adding optical fiber having a wavelength identical to the central wavelength of the bandpass filter and are transmitted to the output optical fiber.* That is, both Pan and Li do not disclose *“other optical signals having other wavelengths are coupled with an optical signal from the adding optical fiber having a wavelength identical to the central wavelength of the bandpass filter and are transmitted to the output optical fiber.”* Thus any combination of Pan and Li does not teach or suggest *“other optical signals having other wavelengths are coupled with an optical signal from the adding optical fiber having a wavelength identical to the central wavelength of the bandpass filter and are transmitted to the output optical fiber.”* Therefore, *there is no suggestion or motivation* for one skilled in the art to combine Pan with Li in order to arrive at the present invention.

In conclusion, applicant asserts that independent claim 1 is patentable under 35 U.S.C. 103 over Pan in view of Li, and requests that the rejection be removed.

Accordingly, dependent claims 2-7 should also be patentable.

Regarding claim 8, the present invention includes a multicenter optical add-drop multiplexer module comprising a plurality of optical add-drop multiplexers sequentially connected together from the first to the last, each optical add-drop multiplexer comprising: a first ferrule with an input optical fiber and an

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output optical fiber stationed therein; ...; *an optical crystal*; a second graded index lens; and a second ferrule having an adding optical fiber and a dropping optical fiber stationed therein; wherein the first graded index lens, the bandpass filter, the optical crystal and the second graded index lens are successively placed between the first ferrule and the second ferrule, an optical multiplexed signal from the input optical fiber is transmitted to the bandpass filter, from which an optical signal having a wavelength identical to the central wavelength of the bandpass filter is output to the dropping optical fiber, *and other optical signals having other wavelengths are coupled with an optical signal from the adding optical fiber having a wavelength identical to the central wavelength of the bandpass filter and are transmitted to the output optical fiber.* As indicated by Examiner, Pan fails to disclose *"an optical crystal."* Similarly, Li does not teach or suggest *"an optical crystal."* Applicant acknowledges that Li discloses an add/drop multiplexer having a refractive element 102 (col. 7, line 31). However, Li does not teach or suggest that *the refractive element 102 is an optical crystal as recited in claim 1 of the present invention.* Therefore, both Pan and Li fail to disclose *"an optical crystal."*

Secondly, Li fails to disclose, teach or suggest *that the refractive element 102 can be used in the add/drop multiplexer of Pan.* In applying Li to Pan, one of ordinary skill in the art would not have been led to provide an optical add-drop multiplexer of claim 8 of the present invention comprising an optical crystal. Therefore, *there is no suggestion or motivation* for one skilled in the art to combine Pan with Li in order to arrive at the present invention.

Secondly, Li fails to disclose, teach or suggest *that the refractive element 102 can be used in the add/drop multiplexer of Pan.* In applying Li to Pan, one of ordinary skill in the art would not have been led to provide an optical add-drop

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multiplexer of claim 8 of the present invention comprising an optical crystal. Therefore, *there is no suggestion or motivation* for one skilled in the art to combine Pan with Li in order to arrive at the present invention.

Thirdly, Pan fails to disclose *“other optical signals having other wavelengths are coupled with an optical signal from the adding optical fiber having a wavelength identical to the central wavelength of the bandpass filter and are transmitted to the output optical fiber.”* Similarly, Li fails to disclose, teach or suggest *“other optical signals having other wavelengths are coupled with an optical signal from the adding optical fiber having a wavelength identical to the central wavelength of the bandpass filter and are transmitted to the output optical fiber.* That is, both Pan and Li do not disclose *“other optical signals having other wavelengths are coupled with an optical signal from the adding optical fiber having a wavelength identical to the central wavelength of the bandpass filter and are transmitted to the output optical fiber.”* Thus any combination of Pan and Li does not teach or suggest *“other optical signals having other wavelengths are coupled with an optical signal from the adding optical fiber having a wavelength identical to the central wavelength of the bandpass filter and are transmitted to the output optical fiber.”* Therefore, *there is no suggestion or motivation* for one skilled in the art to combine Pan with Li in order to arrive at the present invention.

In conclusion, applicant asserts that independent claim 8 is patentable under 35 U.S.C. 103 over Pan in view of Li, and requests that the rejection be removed.

Regarding claim 17, the present invention includes an optical changing assembly comprising: at least one unit including: a first ferrule holding a first input fiber and a first output fiber therein; ...; *an optical crystal positioned between and beside said first GRIN lens and said second GRIN lens;* ...; simultaneously a

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second light coming from the second input fiber *includes another signal of λ hitting the optical crystal and being refracted by the optical crystal, toward and entering the first output fiber to join the reflected first light.* As indicated by Examiner, Pan fails to disclose *"an optical crystal."* Also, Pan fails to disclose *"simultaneously a second light coming from the second input fiber includes another signal of λ hitting the optical crystal and being refracted by the optical crystal, toward and entering the first output fiber to join the reflected first light."* Similarly, Li does not teach or suggest *"an optical crystal" nor "simultaneously a second light coming from the second input fiber includes another signal of λ hitting the crystal and being refracted by said crystal, toward and entering the first output fiber to join the reflected first light."* Applicant acknowledges that Li discloses an add/drop multiplexer having a refractive element 102 (col. 7, line 31). However, Li does not teach or suggest that *the refractive element 102 is an optical crystal of claim 17 of the present invention.* Therefore, both Pan and Li fail to disclose *"an optical crystal" and "simultaneously a second light coming from the second input fiber includes another signal of λ hitting the optical crystal and being refracted by the optical crystal, toward and entering the first output fiber to join the reflected first light."*

Secondly, Li fails to disclose, teach or suggest *that the refractive element 102 can be used in the add/drop multiplexer of Pan.* In applying Li to Pan, one of ordinary skill in the art would not have been led to provide an optical add-drop multiplexer comprising an optical crystal as recited in claim 17 of the present invention. Therefore, *there is no suggestion or motivation* for one skilled in the art to combine Pan with Li in order to arrive at the present invention.

In conclusion, applicant asserts that independent claim 17 is patentable under

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35 U.S.C. 103 over Pan in view of Li, and requests that the rejection be removed.

Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan (US 6,249,625) in view of Li (US 6,477,289) and further in view of Chang et al (US 6,792,211).

Applicant respectfully traverses on the ground that, in the first place, the parent claim of claims 18-20, namely claim 17, is patentable over the three cited references. Applicant acknowledges that Chang discloses a compact optical wavelength add/drop multiplexer having more than unit assembled sequentially one another, with the first output fiber of one unit being connected to the first input fiber of the next unit (FIG 3A and 3B). However, Chang fails to disclose "*the second output fiber of said one unit is connected to the second input fiber of said next unit.*" Similarly, both Pan and Li fail to disclose "*the second output fiber of said one unit is connected to the second input fiber of said next unit.*" Thus any combination of Pan and Li with Chang does not teach or suggest "*the second output fiber of said one unit is connected to the second input fiber of the said next unit.*" Therefore, *there is no suggestion or motivation* for one skilled in the art to combine Pan and Li with Chang in order to arrive at the present invention of parent claim 17.

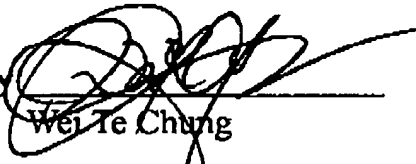
In summary, Pan (US 6,249,625) in view of Li (US 6,477,289) and further in view of Chang et al (US 6,792,211) would not reasonably yield the single unit as recited in claim 17. That is, claim 17 is patentable under 35 U.S.C. 103 over the three cited references. Accordingly, dependent claims 18-20, which each recite a plurality of the units as per claim 17, should also be patentable.

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In conclusion, applicant asserts that dependent claims 18-20 are patentable under 35 U.S.C. 103 over Pan (US 6,249,625) in view of Li (US 6,477,289) and further in view of Chang et al (US 6,792,211), and requests that the rejection be removed.

In view of the above remarks, the subject application is believed to be in a condition for allowance, and an action to such effect is earnestly solicited.

Respectfully submitted,
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